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LXXVIII. *Experiments concerning the Use of the Agaric of Oak in stopping of Hæmorrhages.*

I.

An Account of the Event of Experiments made by Agaric upon the Amputation of the legs of two Women in Guy's Hospital. By Mr. Samuel Sharp, Surgeon of that Hospital, and F. R. S.

Dec. 12, 1752.

Read Dec. 14, 1752. **P**URsuant to a recommendation from the chair on Thursday the seventh instant, the agaric was made use of, the ensuing Saturday, on two women, whose legs were amputated below the knee.

One of them was sixty-two years of age, and had been very much impair'd by a long illness, and continual pain. During the operation, she bled with great impetuosity; and it was with difficulty, that the hæmorrhage was stopp'd, notwithstanding I press'd the agaric, with all my force, against the extremities of the *tibialis antica*, and *tibialis postica*, the two largest arteries. The tendency to bleed, after the operation, was such, that I found it necessary to apply the tourniquet, and keep a tight stricture on the femoral artery. She complain'd grievously of the pain arising from the stricture; upon which it was a little loosen'd, and soon after a hæmorrhage ensu'd from one of the two large arteries, which was immediately

ately taken up, and tied with a needle and ligature. In order to discover this vessel, the agaric was remov'd; and tho the tourniquet was quite slack, the other large artery did not bleed one drop. This happened about an hour and an half after the operation. After the vessel was tied, the same agaric was again laid on the same part, without screwing the tourniquet, and the patient became much easier; but, in about three hours and an half, the other large vessel burst open; and tho' assistance was on the spot, and it was immediately tied up, she was so exhausted by the sudden loss of blood, that she died in about twenty minutes.

It is conjectured, that, by the three hæmorrhages, *viz.* the first during the operation, and the two after the operation, she lost between twenty and thirty ounces of blood. I examined the limb after death, but found no singular appearance in the vessels, or the adjacent parts.

The other woman was twenty-four years of age. She lost very little blood in the operation, and has continued extremely well ever since. The agaric seems, in this instance, to have answered the most sanguine expectations. The dressings were removed this morning, without any accident. Mr. Warner, who performed the amputation, proposes to do himself the honour of laying the particulars of her case before the Society.

Samuel Sharp.

II.

*The History of a Case relating to the Effects of the
Agaric of Oak in stopping of Hæmorrhages.
By Joseph Warner, Surgeon to Guy's Hospital,
and F. R. S.*

Hatton-Garden,
Dec. 14, 1752.

Gentlemen,

Read Dec. 14, 1752. **A** Greeably to the desire of this Society,

I have embraced the first opportunity of communicating to you the effects of the agaric of the oak in stopping of hæmorrhages, or the bleeding from principal vessels after amputation. If I have been too circumstantial in my narrative of the symptoms attending the following case, I hope you will attribute it merely to the desire I have of giving you all the satisfaction I am capable of, relating to the experiment of this styptic : And this I have been more particularly induced to, as it is one of the first cases of the kind, offered to your consideration, where this application has been made use of in England.

Saturday December 9, 1752. Catharine Spong, aged twenty-four, had her leg amputated, about four inches below the knee, at twelve o'clock to-day, on account of an incurable ulcer, with which she had been afflicted for thirteen years. She lost very little blood by the operation. Immediately after the amputation, a piece of agaric, of a proper size (the same which was deliver'd to Mr. Sharp by the Royal Society for this purpose), was applied to the mouths of the principal arteries. Two other pieces of agaric were applied to the mouths of two smaller arteries, which appeared at some distance

stance from the principal ones. Upon the pieces of agaric, doffils of lint were applied, and over all a pledgit of tow spread with the common digestive; all which were kept on by the common bandages made use of in the like cases, and applied with the same degree of tightness as usual.

For an hour and a quarter after the operation, the ligature and tourniquet were kept on, moderately tight, at a convenient distance above the knee, at the end of which time it was slackened so as to have no degree of pressure upon the femoral artery, as the dressings and rollers appeared very little tinged with blood. The patient was much easier than I had ever observed, after the use of the needle and ligatures. Her pulse appeared very little disturbed till about four o'clock this afternoon, when the symptomatic fever began to come on, attended now and then with convulsive twitches of the stump, and thigh; for which reasons, the ligature was somewhat tightened. At seven o'clock this evening the ligature and tourniquet were quite loosened; soon after which, the convulsive twitches became less frequent, and less severe. These convulsive twitches she had been long used to, and, by her own account, they were more severe before the operation, than they have been since. She had but little rest to-night.

Sunday morning, at half an hour after ten o'clock, she appeared as well as could be expected, her pulse was calm, and she had no particular complaints. At twelve o'clock at night she fell asleep, and so continued till after seven o'clock the next morning.

Monday

Monday morning she appeared well, her pulse was calm, and she had no particular pain. Monday night she slept but little, but was very easy the whole night.

Tuesday morning she appeared well, her pulse quiet. This morning, at eleven o'clock, she was dress'd in the usual manner: The wound appear'd with a very good aspect; she has suffer'd no particular pain in the parts where the agaric was apply'd, and is, in all respects, as well as can be expected. At seven o'clock this evening I visited her again: She was perfectly easy; the convulsive twitches, which she at first complained of, are quite removed, and have been so ever since yesterday morning.

Wednesday morning, she continues well, and perfectly easy; has had no return of her convulsive twitches, nor is there any appearance of blood thro' the rollers, or dressings.

Thursday, Dec. 14. she continues very well. Her wound was dress'd this morning, at half an hour after eleven o'clock, when there appeared a very proper discharge of matter, not in the least tinged with blood. The whole of the agaric, with the rest of the dressings, are come off, without giving pain. She had yesterday two or three convulsive twitches of the stump, and thigh, but they were slight. Her pulse is good.

III.

A short History of the Effects of the Agaric of the Oak in stopping of Bleedings after some of the most capital Operations in Surgery; with an Account of the Manner of its acting upon the Vessels. By Joseph Warner, F. R. S. and Surgeon to Guy's Hospital.

Read May 23, 1754. **I**N December 1752. I had the honour of communicating to the Royal Society the good effects of the agaric of the oak in the case of a young woman, aged twenty-four years, whose leg I had cut off below the knee. Since that time, I have not heard of any farther trials, which have been made with it, nor of any accounts, that have been given to the Society, of its great usefulness in surgery. This may probably arise from the virtues of the agaric not being, as yet, much known in England; or from the unwillingness of surgeons to adopt such a method, as they may probably suppose to be attended with hazard.

The great success, which attended my first experiment of this kind, was a sufficient inducement to make a farther trial of it in other cases of the like nature. This I have done in four more instances, all of which have been attended with success equal to the first. The particular advantage of the application is evidently this; that it has the power of effectually restraining the bleeding without giving pain; for which reason, there appears to be less of

the symptomatic fever, than what occurs after the use of the needle and ligature, which is, by much, the most painful process of the operation in amputations, and is sometimes productive of fatal convulsions, as has been observ'd by Monsieur le Dran, in his chapter of amputations; under which circumstances, he particularly advises the immediate removal of the ligatures as a cure.

The ligatures have sometimes the farther inconvenience of remaining quite fix'd to the last; on which account, they unavoidably retard the healing of the wound.

Besides the effect of restraining the hæmorrhage in all recent wounds, which the agaric has in common with the ligature, it has one great advantage peculiar to itself; which is that of effectually restraining the bleeding in wounds of several days or weeks standing, where the parts are become so rotten, as to be incapable of bearing the ligature. This I have known the effect of in several instances, where the ligature has been attempted in vain.

The manner, in which the agaric acts, is, by contracting, or purring up the extremities of the divided vessels. I had an opportunity of enquiring into the fact, in the case of a patient, whose leg was cut off below the knee. Immediately after the amputation, pieces of agaric were apply'd to, and properly secur'd upon, the mouths of all the principal vessels. In about an hour after the operation, the stump bled afresh; on which account, I remov'd all the dressings, except those pieces of agaric, that were at first apply'd. This gave me an opportunity of discovering the source of the hæmorrhage,

rhage, which was from a collateral vessel, at least an inch distant from the principal ones.

When I had secur'd the vessel, I had the curiosity to remove the bits of agaric from those very parts, to which they were at first apply'd. I observ'd the mouths of the vessels to be totally contracted in so short a space of time, and to be capable of resisting the whole force of the circulation; the extremities of the vessels being alter'd from their natural shape of a cylinder to that of a cone.

After having said thus much in favour of the agaric, I shall conclude with a reference to the following cases, as some confirmation of what has been advanced above.

Case 1. Jonathan Lee, aged fifty-one, had his leg cut off, below the knee, on the 7th of this instant May, 1754. He was extremely reduced, in consequence of the disease; and the whole mass of blood was become so much impoverish'd, and alter'd from its natural state, as to appear like serum, both in texture, and colour. During the operation, the screw-tourniquet was apply'd to the thigh with a degree of tightness sufficient to prevent the course of the blood.

Immediately after the amputation, bits of agaric were apply'd to the mouths of the vessels, and upon them soft layers of lint; all of which were cover'd with a pledgit of tow spread with digestive, and were properly secur'd on by the common bandage. About three or four minutes after he was roll'd up, and put to bed, I discover'd the blood to discharge freely thro' the dressings; upon which, I tighten'd the tourniquet, in expectation of stopping the bleeding, but it

appear'd evidently to increase it. Seeing this uncommon effect, I quite slackened the tourniquet; upon which, the bleeding immediately ceased. This I was led to from a supposition, that the veins had probably suffered so great a compression from the instrument, as to be incapable of returning that blood, which was carried to the neighbouring parts by the collateral arteries arising from the principal trunk above the ligature. But whether this was the true reason, or not, I cannot take upon me to determine: However the fact was, that the bleeding immediately ceased, and did not return again.

The patient was dressed on the fourth day after the operation, and the whole of the agaric was removed. Since that time he has been treated in the common method, without any farther use of the agaric. The patient has had very little fever, or pain, since the operation. He has a fair prospect of doing well.

Case 2. Elizabeth Hillier, a very lusty woman, thirty-eight years of age, had her breast cut off on the 7th of this instant May, 1734. The wound was large, and bled freely from several considerable arteries. I made use of no other method to stop the bleeding, than the application of pieces of agaric to the mouths of the vessels, which were properly secured on by a flannel roller, after being first covered with lint, and a pledgit of tow spread with digestive. The symptomatic fever was very slight: She has been quite free from those painful spasms, which constantly arise from the use of the ligature: There has not been the least loss of blood since the operation.

Her

Her wound was dressed on the fourth day, when the whole of the agaric came away : Since that time it has been treated in the common method. She is in a very fair way of recovery.

Case 3. George Whitmore, aged twelve years, had his leg cut off, below the knee, on the 13th of this instant May, 1754. The agaric and dressings were applied as in the preceding cases, which has answered perfectly well in all respects. The tourniquet was quite removed in ten minutes after the operation ; he has had very little fever, restlessness, or pain. His wound was dressed on the fifth day, and the whole of the agaric was removed. He is as well as can be expected.

Case 4. Richard Barnat, aged fifty-four, had his leg cut off, below knee, on the 21st of this instant May, 1754. I made use of no other methods, to stop the bleeding, than the agaric, which was applied as in the preceding cases. Immediately after the operation, the patient was put to bed, and the tourniquet let quite loose. He has not sustained the least loss of blood since the operation. The pain and fever have been very inconsiderable, and he seems to be in a very fair way of doing well.

Remark.

The case of Jonathan Lee has something singular in it, and particularly proves the extraordinary efficacy and usefulness of the agaric. I have already taken notice, how frequently it is impracticable to make a proper use of the needle and ligature, in wounds of long standing ; and I farther know, from experience, that it is no uncommon thing to meet with
the

the same disappointment, even in recent wounds, that are made upon diseased parts. So that I think it may be reasonably questioned, whether I should not have met with the like difficulty in this subject, had I attempted to secure the vessels by ligatures.

Hatton-Garden, Thursday
May 23, 1754.

LXXIX. *Description of a new Pyrometer, with a Table of Experiments made there-with.* By Mr. J. Smeaton, F. R. S.

Read May 23, 1754. **A**S it may tend to illustrate the following account, it may not be improper to make mention of the properties, that a complete instrument, for measuring the expansions, that metalline bodies are subject to by heat and cold, ought to be endowed with.

And, first, since the quantities of those expansions must be proportionable to the length of the bar to be measured; the longer the bar, the more sensible the expansion: And therefore such a construction is best, as (*cæteris paribus*) will admit of the longest bar.

Secondly, That the scale, whereupon those minute alterations are to be measured, ought to be, at least, so large, that the smallest change in the length of the bar, which the instrument is capable of being with certainty affected with, ought to be perceivable thereon.

Thirdly,